

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: IMMER, Hansueli
FORSSMANN, Wolf-Georg
ADERMANN, Knut
KLESSEN, Christian



(ii) TITLE OF INVENTION: PROCESS AND INTERMEDIATE PRODUCTS FOR PREPARING CARDIODILATIN FRAGMENTS AND HIGHLY PURIFIED CARDIODILATIN FRAGMENTS

(iii) NUMBER OF SEQUENCES: 11

(iv) CORRESPONDENCE ADDRESS:

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(E) COUNTRY: USA
(F) ZIP: 20005-4810

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: US 09/027,777
(B) FILING DATE: 23-FEB-1998
(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: DE 44 20 381.0
(B) FILING DATE: 02-JUN-1994

(viii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: DE 195 13 784.1
(B) FILING DATE: 10-APR-1995

(ix) ATTORNEY/AGENT INFORMATION:

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(B) REGISTRATION NUMBER: 36,105
(C) REFERENCE/DOCKET NUMBER: P1614-8019

(x) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: (202) 638-5000
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(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:

14
SUB I 2

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Cys	Phe	Gly	Gly	Arg	Met	Asp	Arg	Ile	Gly	Ala	Gln	Ser	Gly	Leu	Gly
1				5					10					15	

Cys

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS:

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Leu	Arg	Ala	Leu	Leu	Thr	Ala	Pro	Arg	Ser	Leu	Arg	Arg	Ser	Ser
1				5					10					15

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 5 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS:

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Asn	Ser	Phe	Arg	Tyr
1				5

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 37 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS:

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Peptide
 (B) LOCATION: 1..15
 (D) OTHER INFORMATION: /note= "Xaa chain is an amino acid chain of 0 - 15 amino acids."

(ix) FEATURE:

(A) NAME/KEY: Peptide
 (B) LOCATION: 33..37
 (D) OTHER INFORMATION: /note= "Xaa chain is an amino acid chain of 0 - 5 amino acids."

(ix) FEATURE:

(A) NAME/KEY: Cross-links
 (B) LOCATION: 16..32

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Cys
1				5					10							15
Phe	Gly	Gly	Arg	Met	Asp	Arg	Ile	Gly	Ala	Gln	Ser	Gly	Leu	Gly	Cys	
			20					25					30			
Xaa	Xaa	Xaa	Xaa	Xaa												

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS:
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Cross-links
 (B) LOCATION: 11..27

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Thr	Ala	Pro	Arg	Ser	Leu	Arg	Arg	Ser	Ser	Cys	Phe	Gly	Gly	Arg	Met
1				5					10					15	
Asp	Arg	Ile	Gly	Ala	Gln	Ser	Gly	Leu	Gly	Cys	Asn	Ser	Phe	Arg	Tyr
			20					25					30		

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1
- (D) OTHER INFORMATION: /product= "Modified by a Boc protecting group and a tBu protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 4
- (D) OTHER INFORMATION: /note= "Modified by a tBu protecting group and a Pbf protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 7
- (D) OTHER INFORMATION: /note= "Modified by a Pbf protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 8
- (D) OTHER INFORMATION: /note= "Modified by a Pbf protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 9
- (D) OTHER INFORMATION: /note= "Modified by a tBu protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 10
- (D) OTHER INFORMATION: /note= "Modified by a tBu protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 11
- (D) OTHER INFORMATION: /note= "Modified by a Acn protecting group"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Thr	Ala	Pro	Arg	Ser	Leu	Arg	Arg	Ser	Ser	Cys	Phe	Gly	Gly
1				5				10					

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1
- (D) OTHER INFORMATION: /product= "Modified by a Fmoc protecting group and a Pbf protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 3
- (D) OTHER INFORMATION: /product= "Modified by a OtBu protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 4
- (D) OTHER INFORMATION: /product= "Modified by a Pbf protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 8
- (D) OTHER INFORMATION: /product= "Modified by a Trt protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 9
- (D) OTHER INFORMATION: /product= "Modified by a tBu protecting group"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Arg	Met	Asp	Arg	Ile	Gly	Ala	Gln	Ser	Gly	Leu	Gly
1				5					10		

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1
- (D) OTHER INFORMATION: /note= "Modified by an Fmoc protecting group"

group or H"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

(D) OTHER INFORMATION: /product= "Modified by a Trt protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2

(D) OTHER INFORMATION: /product= "Modified by a Trt protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 3

(D) OTHER INFORMATION: /product= "Modified by a tBu protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 5

(D) OTHER INFORMATION: /product= "Modified by a Pbf protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 6

(D) OTHER INFORMATION: /product= "Modified by a tBu protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 6

(D) OTHER INFORMATION: /note= "Modified by an O-OH or an O-OtBu protecting group"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Cys	Asn	Ser	Phe	Arg	Tyr
1				5	

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS:

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

(D) OTHER INFORMATION: /note= "Modified by an H or an Fmoc"

protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1

(D) OTHER INFORMATION: /product= "Modified by a Pbf protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 3

(D) OTHER INFORMATION: /product= "Modified by a OtBu protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 4

(D) OTHER INFORMATION: /product= "Modified by a Pbf protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 8

(D) OTHER INFORMATION: /product= "Modified by a Trt protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 9

(D) OTHER INFORMATION: /product= "Modified by a tBu protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 13

(D) OTHER INFORMATION: /product= "Modified by a Trt protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 14

(D) OTHER INFORMATION: /product= "Modified by a Trt protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 15

(D) OTHER INFORMATION: /product= "Modified by a tBu protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 17

(D) OTHER INFORMATION: /product= "Modified by a Pbf protecting group"

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 18

(D) OTHER INFORMATION: /product= "Modified by a tBu protecting group and an OtBu protecting group"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Arg Met Asp Arg Ile Gly Ala Gln Ser Gly Leu Gly Cys Asn Ser Phe
1 5 10 15

Arg Tyr

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 32 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS:
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1
- (D) OTHER INFORMATION: /product= "Modified by a Boc protecting group and a tBu protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 4
- (D) OTHER INFORMATION: /product= "Modified by a Pbf protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 5
- (D) OTHER INFORMATION: /product= "Modified by a tBu protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 7
- (D) OTHER INFORMATION: /product= "Modified by a Pbf protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 8
- (D) OTHER INFORMATION: /product= "Modified by a Pbf protecting group"

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 9
- (D) OTHER INFORMATION: /product= "Modified by a Bu protecting group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 10
 (D) OTHER INFORMATION: /product= "Modified by a tBu protecting
group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 11
 (D) OTHER INFORMATION: /product= "Modified by a Acn protecting
group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 15
 (D) OTHER INFORMATION: /product= "Modified by a Pbf protecting
group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 17
 (D) OTHER INFORMATION: /product= "Modified by a OtBu
protecting group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 18
 (D) OTHER INFORMATION: /product= "Modified by a Pbf protecting
group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 22
 (D) OTHER INFORMATION: /product= "Modified by a Trt protecting
group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 23
 (D) OTHER INFORMATION: /product= "Modified by a tBu protecting
group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 27
 (D) OTHER INFORMATION: /product= "Modified by a Trt protecting
group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 28
 (D) OTHER INFORMATION: /product= "Modified by a Trt protecting
group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 29
 (D) OTHER INFORMATION: /product= "Modified by a tBu protecting
group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 31
 (D) OTHER INFORMATION: /product= "Modified by a Pbf protecting group"

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 32
 (D) OTHER INFORMATION: /product= "Modified by a tBu protecting group and an OtBu protecting group"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Thr Ala Pro Arg Ser Leu Arg Arg Ser Ser Cys Phe Gly Gly Arg Met
 1 5 10 15

Asp Arg Ile Gly Ala Gln Ser Gly Leu Gly Cys Asn Ser Phe Arg Tyr
 20 25 30

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 32 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS:
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
 (A) NAME/KEY: Modified-site
 (B) LOCATION: 11
 (D) OTHER INFORMATION: /product= "Modified by a Acn protecting group"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Thr Ala Pro Arg Ser Leu Arg Arg Ser Ser Cys Phe Gly Gly Arg Met
 1 5 10 15

Asp Arg Ile Gly Ala Gln Ser Gly Leu Gly Cys Asn Ser Phe Arg Thr
 20 25 30
